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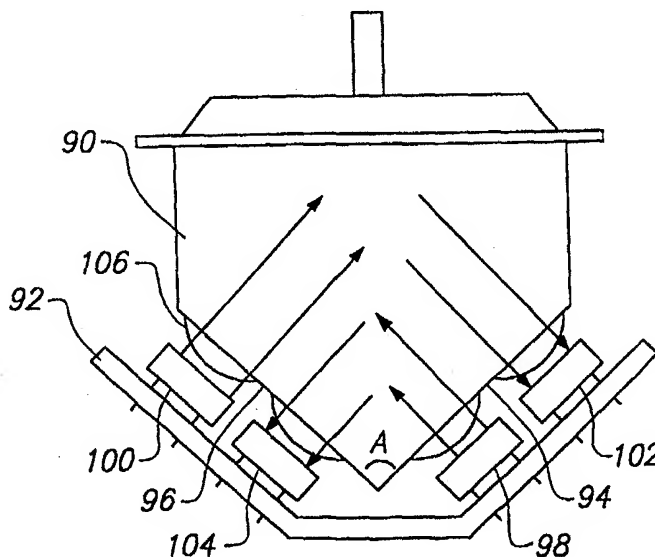
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(54) Title: HEAT EXCHANGING, OPTICALLY INTERROGATED CHEMICAL REACTION ASSEMBLY



(57) Abstract

An assembly for performing controlled heat exchanging reactions is provided. The assembly has a chemical reaction chamber adapted to receive a sample and allow the sample to chemically react; a thermal sleeve having heating elements for making efficient thermal contact with a reaction chamber; an instrument with a housing comprising an electrical connection, a cooling source, a processing area adapted to receive a thermal sleeve, and an optics assembly in optical communication with a chemical reaction chamber; and a circuit for monitoring and controlling the optics assembly and for collecting the output signal of the optics assembly. Preferably there are a plurality of housings and associated modules, each of which may be independently controlled for heat exchanging operations.

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INTERNATIONAL SEARCH REPORT

Int lional Application No

PCT/US 98/03962

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12Q1/68 B01L7/00 G01N21/03

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B01L G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 606 961 A (EASTMAN KODAK CO) 20 July 1994 see column 3, line 45 - column 4, line 16	30
X	see column 7, line 7 - column 8, line 11 ---	1
X	EP 0 662 345 A (CLINICAL DIAGNOSTIC SYST) 12 July 1995 see column 5, line 35 - column 6, line 25; figure 6 see column 8, line 2 - line 52; figures 7-10 see column 9, line 1 - line 21 . ---	1-9, 32-34
X	EP 0 693 560 A (BECTON DICKINSON CO) 24 January 1996 see column 9, line 22 - line 53; figure 4 ---	30,31
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

21 August 1998

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 98/03962

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 589 136 A (NORTHROP M ALLEN ET AL) 31 December 1996 cited in the application see column 7, line 36 - column 8, line 12; figures 4,6,12-14 see column 12, line 45 - column 13, line 18; figures 12-14	38-51
X	see column 12, line 5 - line 16; figures 4,10	52-65
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 98/03962

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. CLAIMS 1-10, 30-31, 32-34, 38-51, 52-53
2. CLAIMS 11-22, 23-29, 35-37, 54-65

FOR FURTHER INFORMATION PLEASE SEE FORM PCT/ISA/206 MAILED 22.06.98

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-10,30-31,32-34,38-51,52-53

chemical reaction chamber with thin conformable portion improving heat exchange

2. Claims: 11-22,23-29,35-37,54-65

chemical reaction chamber with minor faces offset at an angle and adapted to transmit radiation.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US 98/03962

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